

Project Title:

Life Cycle Assessment of Biodiesel

Background: There is a need to evaluate the energy, environmental, and economic characteristics of producing biodiesel in the United States from soy oil compared to petroleum diesel.

Objective: To quantify and compare the comprehensive sets of environmental flows (to and from the environment) associated with both biodiesel and petroleum-based diesel, over their entire life cycles.

The project has four phases:

Phase 1 - Establish approach to LCA. This phase is complete.

Phase 2 - Develop a supporting data set for LCA. This stage is undergoing finalization.

Phase 3 - Conduct LCA. This stage is 90% complete.

Phase 4 - Finalize results. The project is currently in the fourth phase.

Status: FY 1995-FY 1997; Phase 4

Accomplishments:

- A Biodiesel Working Group has been established, an unprecedented collection of private, and government interests that includes USDA, DOE, EPA, the City of Chicago, NBB, Exxon, ARCO Chemical, Cargill, TRT, the Energy and Environmental Studies Institute, and the American Petroleum Institute.
- All data have been collected and preliminary results generated. The analysis is undergoing internal peer review among the principal investigators. A draft peer review report will be available by late 1997, and the project will be completed within 3 months after that.

Participants: National Renewable Energy Laboratory; U.S. Department of Agriculture-Economic Research Service-Office of Energy and New Uses; Ecobalance, Inc.

Sponsoring Organization(s): U.S. Department of Energy Office of Fuels Development, U.S. Department of Agriculture-Economic Research Service-Office of Energy and New Uses

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Papers:

Life Cycle Assessment of Petroleum-Based Diesel Fuel and Biodiesel Forthcoming March 1998.

Coulon, R, V. Camobreco, J. Sheehan, J. Duffield (1996). "Life Cycle Assessment of Biodiesel Versus Petroleum Biodiesel Fuel." *SETAC 17 Annual Meeting--Abstract Book. Partnerships for the Environment: Science, Education and Policy*, Washington, DC, November 17-21. Published by Society of Environmental Toxicology and Chemistry, Pensacola, FL.

Life Cycle Assessment of Petroleum-Based Diesel Fuel and Biodiesel--Data Summary Document. July 1996.

Life Cycle Assessment of Petroleum-Based Diesel Fuel and Biodiesel--Final Scoping Document. December 1995.